

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listing of claims in the application:

1. (Currently amended) The method of claim ~~[[44]]~~ 12, wherein said diatomaceous algae is *Chaetoceros gracilis*.
2. (Currently amended) The method of claim ~~[[44]]~~ 12, wherein said diatomaceous alga~~[[e]]~~ is ~~*Skeletonema*~~ *Skeletonema costatum*.
3. (Currently amended) The method of claim ~~[[4]]~~ 12, wherein the growth-limiting factor is silicate deprivation.
4. (Canceled)
5. (Currently amended) The method of claim ~~[[4]]~~ 12, further comprising the step of applying an additional nutrient deprivation to said culture wherein more than one growth limiting factor is applied.
6. (Currently amended) The method of claim ~~[[4]]~~ 12, wherein the growth-limiting factor is applied once the culture has reached a concentration of at least 10^7 cells/mL.
- 7-10. (Canceled)
11. (Canceled)
12. (Currently amended) A method for producing ~~specifically~~ polyunsaturated fatty acids from a diatomaceous ~~algae~~ algal culture, wherein the alga is *Chaetocerotaceae* or *Skeletonemaceae*, comprising the steps of:
 - a. applying at least one growth-limiting factor to a culture of diatomaceous *Chaetocerotaceae* alga or *Skeletonemaceae* alga ~~algae~~ at the end of the exponential growth phase after 6 to 7 days of culture, causing growth arrest of said culture and increased production and stocking by said *Chaetocerotaceae* or *Skeletonemaceae* alga ~~algae in culture~~ of polyunsaturated fatty acids; and
 - b. recovering the polyunsaturated fatty acids from said *Chaetocerotaceae* or *Skeletonemaceae* alga algae.

13. (New) A method for producing Omega-3 polyunsaturated fatty acids from a diatomaceous algal culture, wherein the alga is *Chaetocerotaceae* or *Skeletonemaceae*, comprising the steps of:
 - (a) monitoring the growth of said algal culture until said culture has reached the end of the exponential growth phase;
 - (b) applying silicate deprivation to said culture at the end of the exponential growth phase, wherein said silicate deprivation induces an increase in the production of Omega-3 polyunsaturated fatty acids when compared with a silicate replete culture; and
 - (c) recovering the long-chain polyunsaturated fatty acids from said algal culture.
14. (New) A method of increasing the yield of Omega-3 polyunsaturated fatty acids produced in a diatomaceous algal culture, wherein the alga is *Chaetocerotaceae* or *Skeletonemaceae*, comprising the steps of:
 - (a) monitoring the growth of the algal culture until the culture has reached the end of the exponential growth phase; and
 - (b) applying silicate deprivation to the culture at the end of the exponential growth phase; wherein the silicate deprivation induces an increase in the production of Omega-3 polyunsaturated fatty acids in the alga compared with that of a silicate replete algal culture.